

CLAIM OR CLAIMS

1. A process of purifying silicon by removing metallic impurities and non-metallic impurities from metallurgical grade silicon to produce a silicon suitable as solar grade silicon,
5 comprising the steps of (i) grinding metallurgical grade silicon containing metallic impurities and non-metallic impurities to a silicon powder consisting of particles of silicon having an average diameter of less than about 5 millimeter; (ii) while maintaining the ground silicon powder in the solid state, heating the ground silicon powder to a temperature less than the melting point of silicon under reduced pressure; and (iii) maintaining the heated ground
10 silicon powder at said temperature for a period of time sufficient to enable at least one metallic or non-metallic impurity to be removed.
2. The process according to Claim 1 in which the temperature is between about 1000 °C to a temperature less than 1410 °C.
- 15 3. The process according to Claims 1 or 2, in which the impurity is phosphorous.
4. The process according to Claims 1, 2, or 3, in which the particles of silicon have a diameter less than about 5 millimeter.
- 20 5. The process according to Claims 1, 2, 3, or 4, in which the pressure of the treatment atmosphere is less than about 0.5 Torr/66.66 Pa.
6. The process according to Claims 1, 2, 3, 4, or 5, in which the ground silicon powder is
25 placed in trays and evenly distributed in a layer during heating.
7. The process according to claims 1, 2, 3, 4, or 5, wherein the ground silicon powder is placed on a stationary belt during heating.
- 30 8. The process according to claims 1, 2, 3, 4, or 5, wherein the ground silicon powder is agitated during heating.

9. The process according to claim 8, wherein the ground silicon powder is agitated in a rotating retort.

10. The process according to claim 8, wherein the ground silicon powder is agitated on a
5 vibrating belt.

11. The process according to claim 8, wherein the ground silicon powder is agitated in a fluidized bed.